

Original Article

Social Determinant Factors of Elderly as an Input in Enhancing Primary Health Care in Indonesia

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Abstract

Objective: To analyze the differences of social determinant factors among elderly according to gender, in urban and rural areas in Indonesia. Indonesia is one of the most populated countries in the world, faces an increased number of elderly. This situation leads to the increase of degenerative diseases and demands of caregivers as well. The identification of social determinant factors of elderly has an important role in enhancing primary health care.

Methods: A comparative study was carried out in 33 provinces in Indonesia using secondary data from Statistics Indonesia 2013. The variables included in this study were percentage of elderly according to education, marital status, occupation, income and living arrangements, divided in gender, urban and rural areas. The normally distributed data were analyzed using unpaired T test and not normally distributed data were analyzed using Mann-Whitney test.

Results: This study showed that there were differences in education, occupation and income between urban and rural areas. In urban area, most of the elderly worked in industry and trade and in rural area they worked in agricultural, indicated huge risks of occupational hazards. Most of them were poor, still married, lived with spouses and family of three generations.

Conclusions: It can be concluded that there were differences of social determinant factors (education, occupation and income) in elderly who live in urban and rural areas that can contribute to the risks of disease in elderly and these situations must be considered as an input to enhance the primary health care.

Keywords: Elderly, gender, rural, social determinants, urban

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Introduction

Indonesia, which is considered as one of many countries with the biggest population in the world, faces increased of life expectancy from 70.9 years in 2015–2020 to 72 years in 2025–2030.¹ An increase of elderly population and the percentage of elderly will increase from 8.5% in 2015 to 11.8% in 2025.¹

Indonesia's success in increasing life expectancy, has many consequences, among others increase of noncommunicable diseases.

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The situation is worsened by the presence of multimorbidity or comorbidity.^{2–4} Moreover, problems faced by the elderly are not just about disease and disability, but also about social problems that can influence their health, known as the social determinants of health (SDH).⁵ The World Health Organization Commission on the Social Determinants of Health, defined SDH as “the structural determinants and conditions of daily life responsible for a major part of health inequities between and within countries”.⁶ The SDH is a complex factor consists of economic, political, social, environmental, and cultural conditions that can act as risk factors which have an impact on health.^{5,6}

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The identification of SDH in the elderly can contribute to the development of many health preventive and promotive actions. Based on

these descriptions, the aim of this study was to identify the social determinants of health of the elderly by gender, urban, and rural area.

Table 1 Percentage of Elderly Population from Total Population in Indonesia, 2012

Provinces	60–69 Years (%)	70–79 Years (%)	80+ (%)	60+(%)
Aceh	3.74	1.67	0.58	5.99
North Sumatra	4.06	1.67	0.61	6.33
West Sumatra	4.99	2.36	1.06	8.41
Riau	2.98	1.09	0.38	4.46
Jambi	3.83	1.53	0.64	6.00
South Sumatra	4.16	1.75	0.70	6.6
Bengkulu	3.83	1.57	0.72	6.13
Lampung	4.53	2.10	0.87	7.5
Bangka Belitung Islands	4.04	1.63	0.66	6.32
Riau Islands	2.58	0.90	0.28	3.76
Jakarta	4.10	1.47	0.34	5.91
West Java	4.71	2.14	0.73	7.58
Central Java	6.34	3.45	1.32	11.11
Yogyakarta	6.98	4.35	1.86	13.2
East Java	6.53	3.28	1.15	10.96
Banten	3.29	1.24	0.42	4.95
Bali	6.02	2.98	1.07	10.07
West Nusa Tenggara	4.59	2.03	0.76	7.38
East Nusa Tenggara	4.44	2.12	0.85	7.4
West Borneo	4.22	1.71	0.44	6.37
Central Borneo	3.26	1.17	0.49	4.92
South Borneo	3.99	1.58	0.56	6.13
East Borneo	3.24	1.06	0.36	4.66
North Celebes	5.66	2.65	0.84	9.14
Central Celebes	4.34	2.00	0.62	6.96
South Celebes	5.14	2.53	0.88	8.54
South East Celebes	3.74	1.62	0.70	6.07
Gorontalo	4.38	1.74	0.46	6.58
West Sulawesi	3.89	1.66	0.71	6.26
Maluku	4.00	1.79	0.58	6.37
North Maluku	3.49	1.29	0.41	5.19
West Papua	2.63	0.81	0.20	3.63
Papua	1.86	0.55	0.14	2.56
Indonesia	4.91	2.31	0.83	8.05

Table 2 Percentage of Elderly Population from Total Population, According to Sex and Urban/Rural Area in 33 Provinces of Indonesia, 2012

Provinces	Urban			Rural		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
Aceh	5.03	5.9	5.47	5.61	6.78	6.2
North Sumatra	5.61	6.73	6.17	5.72	7.26	6.49
West Sumatra	6.79	8.42	7.61	7.95	9.88	8.92
Riau	4.16	4.39	4.27	4.49	4.66	4.57
Jambi	5.8	6.13	5.96	5.89	6.14	6.01
South Sumatra	5.97	6.94	6.45	6.36	7.04	6.69
Bengkulu	5.06	5.4	5.23	6.35	6.74	6.54
Lampung	6.63	7.07	6.85	7.62	7.85	7.73
Bangka Belitung Islands	6.13	6.99	6.54	5.8	6.45	6.11
Riau Islands	3.21	3.3	3.25	6.21	6.46	6.33
Jakarta	5.66	6.17	5.91	0*	0*	0*
West Java	6.52	7.26	6.89	8.46	9.42	8.94
Central Java	9.74	11.3	10.53	10.82	12.37	11.6
Yogyakarta	10.28	12.45	11.37	15.15	18.3	16.77
East Java	9.26	10.89	10.08	10.74	12.74	11.76
Banten	4.29	4.66	4.47	5.58	6.37	5.96
Bali	8.05	9.26	8.65	11.51	13.02	12.27
West Nusa Tenggara	6.92	7.4	7.17	7.38	7.69	7.54
East Nusa Tenggara	6.04	6.77	6.4	7.36	7.93	7.65
West Borneo	6.56	6.84	6.7	6.15	6.32	6.23
Central Borneo	4.65	4.73	4.69	4.95	5.14	5.04
South Borneo	5.28	6.26	5.76	5.73	7.09	6.4
East Borneo	4.54	4.4	4.47	5.1	4.82	4.97
North Celebes	7.85	9.45	8.64	8.78	10.38	9.55
Central Celebes	5.92	6.61	6.27	7.06	7.33	7.19
South Celebes	6.46	8.15	7.32	8.26	10.21	9.26
South East Celebes	4.72	5.45	5.08	6.01	6.89	6.45
Gorontalo	5.8	7.27	6.55	6.15	7.05	6.59
West Sulawesi	6.03	7.08	6.57	5.82	6.52	6.17
Maluku	5.7	6.61	6.15	6.29	6.71	6.5
North Maluku	4.61	5.13	4.87	5.36	5.26	5.31
West Papua	3.58	3.35	3.47	3.94	3.45	3.71
Papua	4.01	3.74	3.89	2.34	1.82	2.1
Indonesia	6.91	7.94	7.43	8.07	9.28	8.67

Table 3 Percentage of Elderly from Total Population, According to Sex and Urban/Rural Area in Indonesia 2012

Elderly	Urban (%)	Rural (%)	p value
Percentage of elderly	6.35 (1.90)*	6.49(0.00–16.77)**	0.172
Percentage of male elderly	5.80(3.21–10.28)	6.15(0.00–15.15)	0.147
Percentage of female elderly	6.74(2.16)	6.89(0.00–18.30)	0.308

Methods

A comparative study was carried out to data of social determinants of elderly in 33 provinces of Indonesia using secondary data from Statistics Indonesia 2013. The variables included in this

study were percentage of elderly according to gender, education, marital status, occupation, income and living arrangements.

Normality of data was analyzed using Shapiro-Wilk test. The comparative analysis was conducted between male-female and

Table 4 Percentage of Elderly according to Education, Literacy, Occupation, Income and Home Ownership in Urban and Rural Area, Indonesia 2012

Social Determinants of Health	Urban (%)	Rural (%)	p value
Education			
Never/no	13.96(9.54)*	22.86(0.00–57.90)**	0.000
Not finished elementary school	25.98(12.99–33.77)	38.35(0.00–58.57)	0.000
Elementary School	28.25(5.19)	25.66(8.24)	0.131
Junior High School	11.41(3.73)	3.84(0.00–12.77)	0.000
Senior High School	15.30(4.82)	3.10(0.00–9.43)	0.000
Higher Education	6.39(2.37)	0.81(0.00–3.50)	0.000
Illiteracy			
Male Illiteracy	4.53(0.45–37.37)	19.62(0.00–60.62)	0.000
Female Illiteracy	11.98(2.82–41.90)	36.59(17.98)	0.000
Occupation			
Still working	36.32(4.28)	52.8(0.00–70.97)	0.000
Household	35.61(4.09)	25.52(0.00–32.17)	0.000
Agriculture	31.46(11.18)	80.32(0.00–88.86)	0.000
Industry	7.77(2.94–17.71)	4.55(2.42)	0.000
Trade	34.78(6.44)	8.64(3.17)	0.000
Services	13.62(4.48)	3.07(0.00–11.84)	0.000
Unemployed	0.23(0.00–0.71)	0.09(0.00–0.80)	0.162
Own company	34.95(6.52)	27.25(9.70)	0.000
Own company with employees	31.60(7.92)	47.29(0.00–57.74)	0.000
As employee	17.68(7.68)	4.36(0.00–14.27)	0.000
Independent worker	4.76(0.00–17.85)	4.50(0.00–20.22)	0.521
Family business, unpaid	9.66(3.80)	13.06(0.00–32.35)	0.000
Income >IDR 2,500,000	10.6(3.24–60.00)	3.70(0.00–15.82)	0.000

Table 5 Percentage of Elderly according to their Marital Status and Living Arrangements, Indonesia 2012

Social Determinants of Health	Male (%)	Female (%)	p value
Marital Status			
Still Married	81.72(2.84)	39.23(5.71)	0.000
Widow/widower	15.64(2.19)	56.04(5.82)	0.000
Living Arrangements			
Live alone	4.20(1.32)	11.52(4.70)	0.000
With spouses	20.35(5.45)	11.61(3.10)	0.000
With family member	36.37(7.35)	25.11(5.15)	0.000
With three generations	37.37(7.86)	47.39(6.56)	0.000

urban-rural areas for each variable. The normally distributed data were analyzed using unpaired T test and not normally distributed data were analyzed using Mann-Whitney test. ($\alpha=0.05$)

Results

The proportion of elderly population in the provinces of Indonesia was varied, but a large proportion live on the island of Java. This study discovered that provinces with the percentage of elderly population more than 10% were Yogyakarta, followed by Central Java, East Java and Bali (13.2%, 11.11%, 10.96% and 10.07%, respectively) (Table 1). From all provinces, the age of 60–69 years constitutes the largest proportion, moreover there were five provinces which have more than 1% of elders over 80 years old, namely West Sumatra, Yogyakarta, Central Java, East Java and Bali.

The elderly who lived in rural area covered approximately 8.67% of the total population. This was higher than the elderly who lived in urban area. Statistically, there was no difference between the percentage of elderly population in urban and rural areas ($p=0.172$). In other provinces than the provinces already mentioned, two provinces i.e. North Celebes and South Celebes had more than 10% elderly female in rural area (Table 2). Overall, the elderly female who lived in rural area covered approximately 9.28% of the total population, higher than in urban area. This situation occurred in the elderly male as well. Although, the proportion of elderly female and male were higher in rural compared to urban area,

there was no statistically significant (Table 3).

The level of education of the elderly population was still low. Most of them studied only up to elementary school (Table 4). Percentage of elderly population who never or did not finished elementary school was higher in rural than in urban area ($p=0.000$). The opportunity of the elderly to receive higher education in rural area was very low. This was proven by the very low percentage of the elderly who had higher education in rural area (0.81%) compared to 6.39% in urban area. Moreover, although the elderly had received basic education, the ability to read and write (literacy) was low, especially in rural female. ($p=0.000$)

Almost half of the percentage of elderly population was still working, especially in the rural area. The main occupation in the rural area was agriculture (80.32%) and in urban area was household (35.61%), followed by trade and services (34.78% and 13.62%, respectively). Most of the elderly had their own company or had their own company with employee. There was still elderly who helped their family business, but unfortunately they were not paid, especially in the rural area.

Indonesia has determined the Minimum Income Standard was Indonesian Rupiahs (IDR) 2,500,000 per person permonth. This study showed that percentage of elderly population who had an income of more than IDR 2,500,000 was very low, only 10.63% in urban area and 3.70% in rural area ($p=0.000$).

Most of the elderly male was still married compared to the elderly female ($p=0.000$), but more than half of the elderly female was widowed (Table 5). Moreover, most of the

elderly still lived with other family members, with 3 generations especially the elderly female. However, the percentage of elderly female who lived alone was higher than the elderly male.

Discussion

The percentage of elderly in Indonesia was quite high and varied from one province to another, some even exceeding 10% with the highest percentage of 60–69 years old. This situation showed that Indonesia's population moves to aging population. In general, there was no difference in the percentage of elderly population between urban and rural area. The number of elderly population in rural area, was caused by the urbanization of young people looking for jobs outside the village and also to the big cities.^{7,8} A study conducted by Kreager⁸ showed that 46–75% of younger people in the village migrated from their village to another village or city, although this migration could be near or far. The impact of this situation is 12–37 per cent of elderly in the lower strata were currently vulnerable both physically and economically.

Education is a foundation to build health literacy and at the end is one of the factors that determine health outcomes. In this study, almost more than 90% of the elderly population had low education, especially in the rural area. A study conducted discovered that participants with no educational qualifications were four times more likely to have low health literacy compared to participants with degree level qualifications (21.3% v 4.9%).⁹ This situation affects the complexity of decision making in all areas including health, unawareness of the need for health, does not know where to seek treatment and gap in health information, such as reading of drug prescription, how to take medicine and how to prevent diseases. Lower health literacy was associated with a higher prevalence of depressive symptoms, physical limitations, chronic diseases, higher prevalence of smoking and physical inactivity.^{9,10} Presumably, this occurs because of lack of access to and use of health care services, ineffective patient-provider communication, self care behaviours, and less health information seeking.^{9,10}

This study revealed that almost half of the percentage of elderly population was still working, especially in rural areas. The main occupation in the rural area was agriculture. Elderly people who worked in agriculture area

were vulnerable to a variety of disease because of heat/sunlight exposure, pesticides, traditional farm tools, musculoskeletal problems, animals (snake) or insect bites. Exposure to sunlight has advantages and disadvantages. One of the advantage is metabolism of vitamin D which have an impact to bone metabolism and prevent malignancies.^{11,12} Long-term exposure to sunlight is known to be associated with the development of skin cancer, skin aging, immune suppression, and eye diseases such as cataracts and macular degeneration.^{13,14} Exposure to pesticides can cause poisoning and malignant diseases such as lymphoma.¹⁵ Furthermore, like other traditional farmers in other countries, most of the Indonesian farmers are using agricultural hand tools for cutting, digging and scrapping.¹⁶ Those mechanical hazards are the risk factors of development of musculoskeletal problems because of bowing, bending at the knees, squatting or kneeling and constant hand grip.¹⁷

In accordance with economic status, this study discovered that poverty was higher in rural than in urban area. A report by Priebe and Howell stated that with increasing age, the percentage of poverty among the elders was rising.¹⁷ Aware of this fact, the government needs to develop income security programs for the elderly so that they will not depend financially on their family and can live properly.

This study discovered that more elderly women were widowed compared to elderly men and lived alone. A report by Witoelar, using data from Indonesian Family Live Survey in 1993–2007, discovered that elderly men who lived with an adult child was as much as 68.7% in 1993 and decreased slightly to 65.1%, whereas the elderly women was 75.2% in 1993 and decreased to 63.8%.¹⁸ Furthermore, the elderly man who lived alone was of 0.4% in 1993 to 2.5% in 2007, whereas the elderly women was 3% in 1993 to 11.1% in 2007.¹⁸ The change of living arrangement can cause the need of caregiver. Caregiver is the person who supports and assists disabled person or provides care for elders.¹⁹

The study had limitations since the secondary data did not provide all components of the social determinants of health such as availability and accessibility to health care services, local culture that can affect the health outcomes, cognitive impairment status and living conditions which can be a source of hazard. Although most of the elderly lived with their family, the secondary data could not identify whether the family member stayed almost all day with the elderly or worked the

whole/part of the day. The provided data could not identify who was the caregiver for the elderly as well.

It can be concluded that the Indonesian population moves to aging population with varied percentage across provinces. Most of the elderly have low education and income especially in the rural area. There were various occupational hazards among elderly population according to their occupation

that could contribute to the emergence of occupational disorders. This situation has to be a concern for primary health care providers. Most of the elderly had low economic status which led to the need for financial support either from members of their family or from the government to develop an income security plan. Moreover, if needed, their spouses or other family members could be their caregivers.

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